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Intergenerational Hispanic Perceptions of Childhood Obesity

A thesis submitted in partial fulfillment
of the requirements for the degree of
Bachelor of Science in Nursing

by

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Abstract

Background: Childhood obesity is on the rise in the United States especially among minority families. This study investigates how Hispanic parents perceive their child's weight based on years of acculturation, education level, age, child's gender and 1st or 2nd generation status.

Objective: To assess if there are differences in perception between more acculturated Hispanic immigrants and their less acculturated counterparts.

Methods: Data were collected using the Child's Body Image Scale. Participants were asked to arrange the images based on a series of questions inquiring about their perception of their child and health in general. BMI's were then calculated for their children and compared to the image that the participant had selected to discover if parent's views match their child's figure.

Results: Twenty-nine children and 18 mothers were included in the study. Overall only 13.7% of mothers were able to correctly perceive their child's weight (n=4). Of the inaccurately perceived children all were perceived as smaller than their actual BMI. 48.2% of children in the study were classified as overweight or obese according to the CDC (n=14).

Discussion: No significant relationship was shown between whether a mother could accurately pick the correct image that represented her child's weight based on age, education level, years of acculturation, or 1st or 2nd generation status. However, there was a significant difference between level of accuracy based on whether or not the child was male or female. Mothers were twice as likely to correctly identify their daughter's weight accurately compared to their son's weight.

For many years childhood obesity has been a growing epidemic in the United States. Studies have shown childhood obesity predisposes children to becoming obese as an adult, which leads to many chronic diseases and health problems (Zhou, Emerson, Husaini, & Hull, 2014). Children and adolescents who are overweight show many different physiologic risks for further complications such as hyperlipidemia, hypertension, and glucose intolerance putting children at risk for a number of different chronic diseases especially heart disease and diabetes (Dietz, 1998). With the rising costs of healthcare, a major focus of the industry has been towards preventative healthcare. With childhood obesity being a chronic disease risk factor, it is important to identify what cultural factors lead to childhood obesity and components that impact an unhealthy lifestyle.

Background and Significance

One of the major barriers to treating childhood obesity is failure of parental recognition. A study conducted in 2000, found that only one in five mothers correctly recognized the weight status of her child (Baughcum, Chamberlin, Deeks, Powers, & Whitaker, 2000). The culture in the United States seems to have become more accepting of childhood obesity thus perpetuating the cycle. A cross-sectional study conducted between 1988-1994 and 2005-2010 found there was a 24% decrease in the ability of parents to identify the weight status of their child between the two cohorts overall (Hansen, Duncan, Tarasenko, Yan, & Zhang, 2014). Almost three quarters of parents in the 2005-2010 cohort perceived their overweight children as being just about the right weight. In addition, about one third of the parents with obese children perceived them as about the right weight. Parents have the largest influence over their child's weight through feeding practices and availability of healthy foods, which influence the taste palate and preferences of

their child (Sherry et al., 2004). These preferences last for years and influence the choices a child will make on their own once becoming an adult.

In regard to barriers and factors that affect pediatric obesity, two considerations providers must take into account are ethnicity and culture. A study conducted by Robbins, Mallya, Wagner, and Buehler found that Hispanic and African American children had the highest rates of pediatric obesity with Hispanic children taking the lead with rates of 25.9% in boys and 23.0% among girls (Robbins, Mallya, Wagner, & Buehler, 2015). As the Hispanic population is so highly impacted by this condition, researchers chose to work with this group. In addition to having a high prevalence of childhood obesity, some in the Hispanic culture some believe being overweight is a symbol of status and wealth. This perception is rather ironic as many studies have already demonstrated that in the United States the prevalence of obesity increases as income decreases (Jin & Jones-Smith, 2015). Though the belief that obesity correlates positively with wealth may be true for more recent Hispanic immigrants, research has also demonstrated that more recent immigrants are less likely than their more acculturated counterparts to be obese (Quandt, Grzywacz, & Arcury, 2014). There is some conflicting evidence suggesting that Hispanics no longer consider being overweight as healthy, which conflicts with historical cultural perceptions. Small, Melnyk, Anderson-Gifford, & Hampl (2009) found through their qualitative study that Hispanic parents correlated obesity with poor health if there were manifestations of chronic or other symptomatic problems. Similarly, this study also suggested that Hispanic parents did believe that obesity and overweight status in children did contribute to poor mental and physical health. Regardless these risk factors strongly impact whether or not a child may become obese and whether or not parents will try to change child behaviors to improve their lifestyle. In addition, the distinction of whether or not 1st and 2nd generation

immigrants have the same perception on childhood obesity is unclear and is an important matter to consider.

Previous research on this topic has mainly focused on mother-child dyads in reference to body image (Olvera, Suminski, & Power, 2005). Most studies on this topic focus on acculturation in respect to obesity in general or body image, not specifically of a parent to their own child, nor about differences between the beliefs of 1st or 2nd generation immigrant parents. The *Children's Body Image Scale* is one tool that has been extensively tested to evaluate similar topics to this. The tool was developed by taking the photos of ten-year-old children at different intervals of BMI (body mass index) and morphing their figures to look like the same child. Fourteen images (seven male and seven female) comprise the scale (Truby & Paxton, 2002). The BMI's represented in the scale are 3rd, 10th, 25th, 50th, 75th, 90th, and 97th percentiles. This is the tool that was selected for this study.

Purpose

The purpose of this study is to explore if acculturation into American society influences parental perception of weight status in Hispanic children. *Research Question: Are there differences in the perceptions of child obesity between 1st and 2nd generation Hispanic Immigrants as measured by the children's body image scale (CBIS)?*

Design and Methods

This study was conducted after obtaining approval from the university Institutional Review Board and the school district in which it was conducted. The study consisted of administration of a demographic data survey and follow up interview of parents at local elementary schools in which parents were presented the Children's Body Image Scale and asked

to arrange the images based on a series of questions. The school district selected was based on the presence of a large Hispanic population.

The sample consisted of 18 parents and 29 children using a convenience sample and basing selection on Hispanic ethnicity, being a 1st or 2nd generation immigrant, and having a child age 4-12 years old enrolled in the elementary schools where the study was being conducted. Parents were recruited through English as a second language classes after being presented with information on the study. Programs such as Parent University and Toyota Mom's, and English as a Second language courses served as environment for interview and survey. Participants were all mothers, though fathers were not excluded intentionally from selection.

Parents were asked to fill out a demographic survey that included the parent's age, highest level of education, family structure (asking the parent to list all members living in household and relation to the caregiving role of the child), place of parent's birth, parent's time spent living in the US, and the child's date of birth. Anthropometric measures were then recorded either by looking up information in school nurses' charts (with parental consent) or by manually recording child's height and weight (with child assent). CDC guidelines were used to determine BMI for children based on height, weight, and gender.

For the interview portion, parents were asked to arrange the Children's Body Image Scale images, which were separated and mounted on colored paper to record data without bias of chronological information. In order to remove bias, researchers blinded the parents from knowing the BMI or weight of each child in the image, so that participants would answer truthfully based on visual comparison of the child in the image to the mental image the parent had of their child. The directions for arranging the images were as follows: 1) Which image matches your child; 2) Arrange the children from least healthy to healthiest; 3) What do you

think is the ideal size for your child; and 4) Arrange the children from largest to smallest. Parents self-recorded the information by writing the color of the image on the survey. For the first and third questions only one card was selected from the lineup. For questions two and four, the participants were asked to arrange the colored cards in sequential order based on what the question was asking. This procedure was mirrored from the study conducted by Olevera et al (2005), replacing the question about body attractiveness with perception of healthiness.

Data Analysis

Descriptive statistics were calculated for the demographic and anthropometric measures (e.g. parent's age, gender, child's age, gender, BMI). Data was shown to varying distributions as sample size was small. BMI was calculated for children based on birthday and the date on which the measurement was taken following CDC guidelines. Child BMI values were then compared to CBIS images to categorize which pictorial image best represented their weight status (Actual BMI Image). Underweight was classified as percentile range of less than 5th percentile, normal or health weight was between the 5th-85th percentiles, overweight was classified as 85th-95th percentile, and above the 95th percentile was classified as obese (About Child & Teen BMI, 2015). Five statistical tests were conducted for this study to determine relationship between parental perceived BMI and child's actual BMI based on generation, length of time spent in the US, education level, maternal age, and whether or not the child was male or female. Descriptive statistics were also calculated to determine if parents could correctly identify unhealthy BMI's based on the images presented. To analyze the differences between parental generations a Wilcoxon Rank-Sum Test was conducted. To analyze the relationship between maternal perception and the length of time spent in the US a Spearman Correlation was conducted. To analyze maternal perception relationship to education level, a non-parametric version of the

Analysis of Variance, Kruskal Wallis test was performed. To compare maternal perception to the mother's age a Spearman Rank correlation was conducted.

Results

Eighteen mothers and 29 children were included in the study. Some parents had multiple children who were included, this was allowed in order to see if the parents showed different perceptions towards their different children. Demographic information revealed a mean age of 37.4 (SD of 7.3). Three of the parents were 2nd generation immigrants (16.6%), and 15 of parents were 1st generation immigrants (83.3%). Table 1 shows the results of descriptive statistics for the sample. Level of education for the participants varied. Two mothers (11%) had below elementary school education, eight mothers (44%) had some middle school education, three mothers (16.6%) had some high school education, and five mothers (27.7%) had some college education. Families mainly consisted of nuclear families with 15 of the families only consisting of siblings and parents of the child. Other family units did not include siblings or had ambiguous answers about family structure. The majority of first generation participants (14) were born in Mexico, with one participant born in Guatemala. The other three participants were born in the USA. The mean time spent living in the US was 15.9 years with a SD of 6.5 years. Mean age of the children was 7.9 years with a SD of 2.2 years. The majority of children in the study were male (N=18 or 62.1%) and almost twice the rate of females (N=11 or 37.9%). Only one child (3%) was classified as being underweight according to the CDC guidelines. Nine children were classified as overweight (31%). Five children were classified as obese (17%). The remaining children were classified as healthy or normal weight (48%).

Statistical analysis was performed to compare parental accuracy in picking the correct image that matched their child. Four of the children were perceived correctly (13.7%), two of

whom were classified as obese children. Three (10.3%) of children were perceived as five categories (cards) smaller than their actual BMI (all of these children were classified as obese). Six (20.6%) of the children were perceived as four categories (cards) smaller than their actual BMI (3 of whom were classified as obese). Three (10.3%) of children were perceived as three categories (cards) smaller than their actual BMI (one of whom was classified as obese and one was overweight). Eleven (37.9%) of the children were perceived as two categories (cards) smaller than their actual BMI (four of these children were classified as obese and one was classified as overweight). Two (6.8%) of the children of children were perceived as one category (cards) smaller than their actual BMI (neither of these children were obese or overweight). None of the children in this study were perceived as larger than their actual BMI.

In comparing maternal factors to accuracy in perceiving child's weight a number of tests were run. Table 2 shows the variables compared to maternal accuracy, the test performed, the parameters of the test, and the significance the test revealed. No significant differences were shown between maternal age, education level, immigration status, or the amount of time spent in the U.S and the ability of the mother to correctly perceive the weight status of her child. However, there was a statistically significance in accurate maternal perception between male and female children. Participants were almost twice as likely to correctly perceive girls as healthy or unhealthy, compared to their male counterparts. Almost four times as many boys were incorrectly perceived inaccurately as girls. Though exploring this difference is important, due to the small sample size additional study may not maintain statistical significance.

Table 1

Descriptive statistics of participants, Hispanic mothers and children

Group	Variable	N	%	Min.	Max.	Mean	SD
Parent							
	Age	29		26	55	40.0	7.34
	Education						
	Elementary	2	7.4				
	Middle School	13	48.2				
	High School	6	22.2				
	Some College	1	3.7				
	Assoc. Degree	5	18.5				
	Generation						
	First	24	82.8				
	Second	5	17.2				
Child							
	Age	29		5	12	8	2.20
	Gender						
	Male	18	62.1				
	Female	11	37.9				

Table 2

Relationship of variables to Maternal Accuracy in Perception

Group	Variable	Test	Parameters	Significance
Parent				
	Birth Country	Wilcoxon Rank-Sum	W=85.5, p=0.28	No significant difference in accuracy
	1 st Generation		M=14.56, SD=16.83	
	2 nd Generation		M=17.10, SD=16.83	
	Age	Spearman Correlation	r=0.17 p=0.34	No significant difference
	Education Level	Kruskal-Wallis test	Details in table 3	No significant relationship shown
	Time spent in US	Spearman Rank Correlation	r=0.13 p=0.50	No significant relationship shown
Child				
	Child's gender	Chi-Square test of independence	Chi square=4.97 P=0.026 Cramer's V=0.41	Significant difference shown

Table 3

Wilcoxon Scores (Rank Sums) for Variable BMI Gap

Parent Education	N	Sum of Scores	Expected Under H0	Std. Dev Under H0	Mean Score
Below High School	15	163	210	20.04	10.87
High School Diploma	6	109	84	16.77	18.17
Beyond High School	6	106	84	16.77	17.67

$\chi^2 = 5.51 (2), p = 0.064$

Table 4
Parent Perception of Health by Gender

Gender	Heath	
	Correct	Incorrect
Females	7 (63.6)	4 (22.2)
Males	4 (36.4)	14 (77.8)

$\chi^2 = 4.97 (1), p = 0.026$ Cramer's V = 0.41

Discussion

Though the initial hypothesis for the research question suspected that there was a relationship between the time spent living in the U.S. and the accuracy of parental perception of child's weight status, no significant relationship was shown. Maternal accuracy at perceiving child's weight correctly was low (86%) and all of the children who were perceived inaccurately were perceived as smaller than their actual size. These results are similar to Killion et al (2006), who found that minority mothers were more likely to perceive their children as smaller than their actual body size. Education level and ability to correctly perceive weight status showed no significant correlation, which differs from previous studies on the topic. This is likely due to small sample size, absence of normality of the data, and unequal samples between 1st and 2nd generation mothers. Baughcum et al. (2000), found that mothers with lower education and lower socioeconomic status were less likely to perceive their children as overweight or obese and only one in five mothers were able to correctly perceive their child's weight at all. In relation to age and ability to recognize child's weight no significance was shown in maternal age and being able to perceive children's weight accurately. Likewise, with 1st or 2nd generation status, which is

similar to time spent in the US, no significant relationship was shown. However, similar to other studies (Olevera et al, 2005), there was a significant difference between maternal accuracy in perceiving BMI between girls and boys. Mothers were more accurate in perceiving a daughter's BMI almost twice as much as males.

These results suggest the need for further study as the inability for parent's to perceive a child's weight is multifactorial and is being extensively studied in order to come up with appropriate interventions that providers can suggest for parents to be able to intervene early on to promote health in the child and later on adult population. Since a number of risk factors for chronic disease tend to be present in children with obesity (Dietz, 1998), it is important to address this condition as early as possible and early recognition is key.

This study had many limitations due to the small sample size and limited access to participants. The small sample contributed to difficulty in statistically analyzing the data and the unequal sizes of participants in the 1st and 2nd generation categories made comparison limited and might not reflect the general population as a whole. Data was also not distributed normally throughout which is problematic for generalizing the findings of this investigation. Though the school district in which the study was conducted had an ample Hispanic population, the mediums (i.e. Toyota Mom's, ESL classes) in which the study was conducted had only a few parents for sampling. Another limitation has to do with the scale chosen for the pictures. The 6th and 7th categories represented 90th and 97th percentiles respectively which do not correlate with the CDC guidelines for overweight and obese. The CDC considers overweight as above the 85th percentile and obese above the 95th percentile. This visual limitation may have influenced parental decisions when choosing which image represented their child.

Further investigation should attempt to expand the sample to more than one school district in the area and reach out to Hispanic community resources. Investigation should also include a question on the demographic survey to inquire whether or not the child regularly visits a primary care provider. Lack of contact with a provider who can assist and educate parents on recognizing childhood obesity might correlate with increased inability to perceive a child's weight accurately.

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